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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,980	03/27/2001	Herbert Lifka	NL 000157	9870

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EXAMINER	
PERRY, ANTHONY T	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,980	LIFKA ET AL.	
	Examiner	Art Unit	
	Anthony T Perry	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 October 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment filed on 10/28/04, has been entered and acknowledged by the Examiner.

Claim Rejections - 35 USC § 102 / 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Morimoto et al. (4,542,317).

Regarding claim 1, Morimoto et al. discloses a display device in Fig. 7, comprising of a first substrate provided with a conductor pattern 12 and 13, parts of which form pixels (P of Fig. 7), characterized in that, at least in the viewing area of the display device, the conductor pattern 12 and 13, viewed in the direction from the conductor pattern 12 and 13 towards the substrate 11, substantially completely covers the corresponding part of the first substrate 11 (see 12 and P of

Fig. 7). Part of the conductor pattern formed on the substrate is a metal film 12 (see col. 4, lines 11-12) represented by the slanted hash marks in Fig. 7. The conductor pattern 13 is made up of anode conductors that define pixels and are made of transparent conductive material deposited in the openings P of Fig. 7 (see col. 4, lines 28-30). On each of the anode conductors 13, a fluorescent layer 14 is deposited so as to cover at least the opening P to form an anode 15 (see col. 5, lines 1-6). Morimoto teaches that in the embodiment shown in Fig. 7, wiring conductors L for the anodes 15 (made up of anode conductors 13 and a fluorescent layer 14 as disclosed by Morimoto) are formed to be separate from the metal film 12 (see col. 7, lines 3-23). Paths S represent slits where the conductor pattern is not covering the substrate. Morimoto discloses a display device in Fig. 7 in which the parts of the conductor pattern, represented by the slanted hash marks are substantially mutually separated by partitioning paths S having a minimal path width (see Fig. 7 and col. 8, lines 24-27).

Alternatively, as a 103 obviousness rejection, one of ordinary skill in the art at the time of the invention would have found it obvious to have the partitioning paths of Morimoto be of a minimal path width so that the partitioning paths would not be noticeable to the unaided eye (such that an image produced by adjacent electrodes would appear to be continuous), as well as to ensure an acceptable contrast, improving the overall quality of the display.

Regarding claim 3, Morimoto discloses a display device in which the partitioning paths S have a substantially constant width (see Fig. 7).

Regarding claim 4, Morimoto discloses a display device in Fig. 7 in which the partitioning paths S have a curved course. Fig. 7 shows the partitioning paths S having a curved course where they surround the part of the metal film E, which surrounds the openings P.

Regarding claim 5, Morimoto teaches a display device in Fig. 7 in which 80% of the partitioning paths S have a minimal path width. As taught in the applicant's disclosure, minimal path widths are not achieved in places where the partition paths form a corner. More than 80% of partitioning paths S in Fig. 7 of the Morimoto reference have a straight or curved course (do not form corners in which a minimal path width is not achieved).

Claims 1, 3, 5, and 6-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khan et al. (US 6,034,752).

Regarding claims 1, 3, 5, and 6-9, the Khan reference teaches a display device in Fig. 6 that comprises a layer of electro-optical material 52, chiral nematic liquid crystal, which is also a light emitting material, between two conductor patterns 56 on a first 46 and second 48 substrate (see col. 11, lines 15-17), at least one of which conductor patterns 56, viewed in the direction from the conductor pattern 56 towards the substrate 48, substantially completely covers the corresponding substrate 48. The first substrate 46 has a conductive pattern 56 coated on the side facing the second substrate (see Fig. 6 and col. 11, lines 45-47). The second substrate 48 is provided a conductive layer 56 (see col. 11, lines 41-43) preferably comprised of transparent Indium Tin Oxide (ITO) (col. 11, lines 61-62). A photoresist pattern is developed, baked and then placed in an acid bath to etch away unwanted regions of the ITO and create an electrode pattern (conductive pattern) 56 which defines pixels (see col. 15, lines 45-46). The conductor pattern is made up of elongated electrode strips each having a width of about 244 microns and a space between them of about 15 microns (col. 13, lines 46-50).

The Khan reference does not specifically state that the electrode strips extend the entire length and width of the viewing area. However, in order to control the light to be emitted from

a point on an LCD, there must be an electrode on both sides of the liquid crystal. One of ordinary skill in the art at the time of the invention would have found it obvious to have the electrode patterns extend the length and the width of the viewing area so as to utilize the entire viewing area. Since one of ordinary skill in the art would have found it obvious to have the electrode patterns extend the length and the width of the viewing area and Khan teaches that the electrode strips (conductor patterns) are about 244 microns thick with a space between them of 15 microns, it is clear that the formed conductor pattern 56 substantially completely covers the corresponding substrate 48.

One of ordinary skill in the art would have found it obvious at the time the invention was made to have the partitioning paths be of minimal path width so as to increase the area of the display that is optically controllable, improving the contrast of the display, as well as to provide the images formed by adjacent pixel electrodes the appearance of being continuous to the unaided eye. Furthermore the path widths taught by Khan are 15-20 microns while the current application states that the "minimal path width is usually so small (<25 μm)." Even further, Khan teaches that the path widths may be made smaller by using a collimating light source in the process, suggesting that the path widths are minimal for the current process and that the process parameters would have to be changed to make the widths smaller. Since the path widths are straight the limitation of at least 80% of the path widths having a minimal width is surely satisfied.

Regarding claims 10-11 and 13, Fig. 6 of Khan et al. discloses a display device comprising a first substrate 46 confronting a second substrate 48. The first substrate 46 has a conductive pattern 56 coated on the side facing the second substrate (see Fig. 6 and col. 11,

lines 45-47). The second substrate 48 is provided a conductive layer 56 (see col. 11, lines 41-43) preferably comprised of transparent Indium Tin Oxide (ITO) (col. 11, lines 61-62) facing the first substrate 46. A photoresist pattern is developed, baked and then placed in an acid bath to etch away unwanted regions of the ITO and create an electrode pattern (conductive pattern) 56 which defines pixels (see col. 15, lines 45-46). Khan teaches that the conductive patterns are made up of a plurality of elongated electrode strips each having a width of about 244 microns and a space between them of 15-20 microns (col. 13, lines 46-50).

Again, the Khan reference does not specifically state that the conductor patterns (electrode strips) extend the entire length and width of the viewing area. However, in order to control the light emitted from a point on an LCD, there must be an electrode on both sides of the liquid crystal. One of ordinary skill in the art at the time of the invention would have found it obvious to have the electrode patterns extend the length and the width of the viewing area so as to utilize the entire viewing area. Since one of ordinary skill in the art would have found it obvious to have the electrode patterns extend the length and the width of the viewing area and Khan teaches that the electrode strips (conductor patterns) are about 244 microns thick with a space between them of 15-20 microns, it is clear that the formed conductor patterns 56 substantially completely cover their corresponding substrates 48 and 46.

One of ordinary skill in the art would have found it obvious at the time the invention was made to have the partitioning paths be of minimal path width so as to increase the area of the display that is optically controllable, improving the contrast of the display, as well as to provide the images formed by adjacent pixel electrodes the appearance of being continuous to the unaided eye. Furthermore the path widths taught by Khan are 15-20 microns while the current

application states that the "minimal path width is usually so small (<25 μm)." Even further, Khan teaches that the path widths may be made smaller by using a collimating light source in the process, suggesting that the path widths are minimal for the current process and that the process parameters would have to be changed to make the widths smaller.

Regarding claim 12, the Khan reference teaches that the facing electrodes are aligned perpendicularly to each other, which means that the first and second paths too are aligned perpendicularly within the viewing area of the display device (see col. 14, lines 16-17).

Regarding claim 14, the Khan reference teaches a display device in Fig. 6 that comprises a layer of electro-optical material 52, chiral nematic liquid crystal, which is also a light emitting material, between two conductor patterns 56 on a first 46 and second 48 substrate (see col. 11, lines 15-17).

Claims 1, 3, 5 and 15-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Young et al. (US 6,153,254).

Regarding claims 1 and 5, the Young reference teaches of a display device in Figs. 1, 2a, and 2b that comprises a conductor pattern 2, wherein the parts that are crossed over by conductor pattern 8 define pixels. In such a device, light is only emitted where electrodes are formed on both sides of the electro-luminescent material 7.

Figs. 1, 2a, and 2b show the electrode patterns extending the length and the width of the viewing area and subsequently that the formed conductor pattern 2 substantially completely covers the substrate 1 within at least the viewing area of the device.

From viewing the Figs. 1-2 the partitioning paths between the electrode strips 2 are shown to have a minimal (very small or slight) path width. Since the partitioning paths are

straight the limitation of at least 80% of the path widths being of a minimal width is surely satisfied.

Regarding claim 3, as shown in Fig. 1 the partitioning paths have a substantially constant width.

Regarding claim 15, the Young reference teaches of a display device in Figs. 1, 2a, and 2b that comprises an electro-luminescent material 7 between two conductor patterns 8 and 2. Young discloses an electro-luminescent display screen in which a flat substrate 1 is provided with a first pattern of conductors 2, then the first conductor pattern 2 is provided with an organic electro-luminescent material 7 and then a second conductor pattern 8 (col. 1, lines 1-6). The first conductor pattern 2 has parts that are crossed over by conductor pattern 8 which define pixels. In such a device, light is only emitted where electrodes are formed on both sides of the electro-luminescent material 7.

Figs. 1, 2a, and 2b show the electrode patterns extending the length and the width of the viewing area and subsequently that the formed conductor pattern 2 substantially completely covers the substrate 1 within at least the viewing area of the device.

From viewing the Figs. 1-2 the partitioning paths between the electrode strips 2 are shown to have a minimal (very small or slight) path width. Since the partitioning paths are straight the limitation of at least 80% of the path widths being of a minimal width is surely satisfied.

Regarding claims 16-17, the paths shown in Fig. 1 are at least partially filled with an insulating material 6 (col. 4, lines 33-38). From viewing the Figs. 1-2 the partitioning paths between the electrode strips 2 are shown to have a minimal (very small or slight) path width.

Since the partitioning paths are straight the limitation of at least 80% of the path widths being of a minimal width is surely satisfied.

Regarding claims 18-19, Fig. 1 shows the second conductor pattern 8 comprising a plurality of sub-electrodes 8 separated from each other by a second partitioning path. From viewing the Figs. 1-2 the partitioning paths between the electrode strips 8 are shown to have a minimal (very small or slight) path width. Since the partitioning paths are straight the limitation of at least 80% of the path widths being of a minimal width is surely satisfied.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Liedenbaum et al. (US 6,054,725) teaches that it is preferable to keep path widths between adjacent electrodes minimal so that the images produced appear to be continuous (see for example col. 2, lines 14-22);

Arai et al. (JP 06-052990) reads on many of the claims, including independent claims 1 and 16, and teaches a device that includes dummy electrodes that allow the path widths between the conductor pattern to be made very small (5 microns) so that the electrode patterns and path widths are not visible to the unaided eye.

Response to Arguments

Regarding the arguments based on the Morimoto et al. rejection under 35 U.S.C. 102:

With regards to the arguments associated with the rejection of claim 1, it has been acknowledged that the specification states, "The maximum distance between parts of the conductor pattern is defined in that parts of the conductor pattern are mutually separated by

partitioning paths having a minimal path width. As, stated, this distance depends on process parameters but particularly on the tolerances of the photolithographic process used.....Although the words 'minimal path width' are used in this context, it will be evident that this minimal path width will not have a constant value in practice, but may locally vary to some extent due to the influence of, for example, etching rates, dust particles, or other influences."

MPEP section 2111.01 [R-1] states, "While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification.....One must bear in mind that, especially in nonchemical cases, the words in a claim are generally not limited in their meaning by what is shown or disclosed in the specification. It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language."

Nowhere in the disclosure is there provided a definition for "minimal path width" and certainly not a clear definition as required by section 2111.01. The closest it comes to defining "minimal path width" is on page 2 where it states, "The minimal path width is usually so small (less than 25 microns) that the separation between the parts of the conductor pattern is not visible or hardly visible." But even here it fails to provide a clear definition because it uses the term "usually" implying that sometimes the minimal path width is greater than 25 microns. The addition, to claims 1 and 5, of the obvious statement that the minimal path width depends on process parameters does not further define or limit the term "minimal." Accordingly, the

Examiner has acted appropriately by applying the definition of minimal given in Meriam-Webster's Collegiate Dictionary Tenth Edition. As seen in Fig. 7 of Morimoto the partitioning path S is shown to be very small compared to the overall coating. It is noted that claim 1 is not limited to curved corners in order to have a minimal path width. Therefore, it is the position of the Examiner that the partitioning paths S of Fig. 7, are of a very small width despite its sharp corners and therefore meet the limitation of "a minimal path width."

With regards to the argument that the Examiner has come to the conclusion that the partitioning paths have minimal widths (in accordance with the dictionary definition) from the visual interpretation of Fig. 7, not from anything taught or disclosed by Morimoto, the Examiner disagrees. Figures are part of the teachings and disclosure a reference.

Furthermore, MPEP section 2125 states "When the reference is a utility patent, it does not matter that the feature shown is unintended or unexplained in the specification. The drawings must be evaluated for what they reasonably disclose and suggest to one of ordinary skill in the art. In re Aslanian, 590 F.2d 911, 200 USPQ 500 (CCPA 1979)."

Furthermore, column 8, lines 24-26 of the Morimoto reference states that the conductor pattern is divided into a plurality of sections separated by "narrow" partitioning paths.

With regards to the argument that there is no indication in Morimoto that the device of Fig. 7 includes the conductor pattern 13, the Examiner disagrees. As taught throughout the Morimoto reference, the anodes 15 are located in the holes P and are composed of anode conductor parts 13 and fluorescent parts 14 (see for example col. 4, lines 28-32). The embodiment shown in Fig. 7 ensures that the path along which electrons impinge on light emitting anodes is not effected by an electric field generated by adjacent anodes having a non-

luminous voltage applied thereto, preventing a defect from occurring at the periphery of the fluorescent layer (see for example col. 6, line 35 – col. 7, line 23). The metal film 12 except for the metal films E, connecting elements L, and wiring conductors L, are applied thereto a potential constantly kept positive with respect to a cathode to form a positive electric field **around** each of the anodes 15, to thereby effectively prevent the display defect (col. 7, lines 17-23).

With regards to the argument that the slits are not narrow because they are big enough to accommodate the wiring conductor L therein, the Examiner disagrees. The slits, or partitioning paths, are located between the wiring conductors L and the metal film 12. The wiring conductors L are not formed in the slits after the slits have been made, but instead are part of the original metal film 12. The metal film is etched in order to form slits that define the wiring conductors L.

In response to the Applicant's arguments that the "level of skill in the art cannot be relied upon to provide the suggestion to **combine references**," the Examiner notes that the 103 rejection is based on a single reference. Furthermore, MPEP 2144 states that "the rationale to modify or combine the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law." In this case, the rationale to modify the Morimoto reference comes from the knowledge generally available to one of ordinary skill in the art.

With regards to the arguments associated with the rejection of claims 3 and 5, again MPEP section 2125 states "When the reference is a utility patent, it does not matter that the feature shown is unintended or unexplained in the specification. The drawings must be evaluated

for what they reasonably disclose and suggest to one of ordinary skill in the art. In re Aslanian, 590 F.2d 911, 200 USPQ 500 (CCPA 1979)."

From Fig. 7, one of ordinary skill in the art would have found the reference to disclose that the path widths are substantially constant. Furthermore, there is nothing in the written disclosure that teaches or suggests otherwise.

A substantial amount of the path widths are made up of straight lines rather than sharp corners, suggesting that the path widths are substantially constant and more than 80% of paths have a minimal width.

Applicant's arguments with respect to the rejections using the Khan reference, the examiner agrees that the figure 6 does not show the entire viewing area. However, in order to control the light to be emitted from a point on an LCD, there must be an electrode on both sides of the liquid crystal. The viewing area is therefor defined by the area covered by the respective electrode patterns (that is, the length of the viewing area is defined by the length of the electrode strips and the width is defined likewise by the width of the electrode strips).

The Applicant mistakenly states that the partitioning paths on either side of the electrode strips have different widths. Khan teaches that the electrode strips on one side of the substrate are separated by partitioning paths of 15 microns and that a different group of electrode strips, located on the opposite side of the substrate are separated by partitioning paths of 20 microns. Furthermore, the difference in the widths of the partitioning paths is due to "process parameters" since the conductor patterns on both sides of the substrate are formed simultaneously such that the photoresist on the bottom side is exposed through the substrate to form the conductor pattern

on the bottom side, while the photoresist on the top side of the substrate is exposed directly to form the conductor pattern on the top side of the substrate (see for example col. 13, lines 11-56).

With regards to the Applicant's arguments that the Young reference does not show the electrode strips 2 and 8 extending the length and width of the viewing area of the display, the examiner respectfully disagrees. It is well known to use a sectional view to represent an entire device when the elements of such a device are simply repeated. Although Fig. 1 only shows a corner section of the device, one of ordinary skill in the art would have recognized the figure to disclose the electrode strips extending the length and the width of the viewing area.

With regards to the argument that the first conductor path does not define the pixel, the examiner disagrees. It is true that the pixels are defined by points where the two electrode patterns intersect. Accordingly, the width of the first conductor pattern defines the width of the pixels.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is **(571) 272-2459**. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-24597. **The fax phone number for this Group is (703) 872-9306.**

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [Anthony.perry@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Joseph W Williams
JOSEPH WILLIAMS
PRIMARY EXAMINER

FOR

Anthony Perry
Patent Examiner
Art Unit 2879
January 24, 2005

Vip Patel
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